

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (Withdrawn) A feed system for an aerosolizer, the feed system comprising:
a feed system housing having an ampoule region that is adapted to receive an ampoule that contains a liquid and that includes a bottom end and a top end, and a liquid receiving region that is adapted to receive liquid dispensed from the ampoule, wherein the liquid receiving region includes an overflow region that extends along side the ampoule region above the bottom end of the ampoule; and
an interface that is adapted to couple the liquid receiving region to an aerosol generator, whereby liquid from the liquid receiving region is permitted to flow to the aerosol generator for aerosolization.

2. (Withdrawn) A feed system as in claim 1, wherein the liquid receiving region includes a tapered bottom end with a drain opening to funnel liquid from the ampoule to the aerosol generator.

3. (Withdrawn) A feed system as in claim 2, wherein the interface is adapted to produce a seal between the bottom end of the liquid receiving region and the aerosol generator.

4. (Withdrawn) A feed system as in claim 2, wherein the feed system housing includes a top portion and a bottom portion having the tapered bottom end, wherein the top portion is attachable to the bottom portion, and wherein the ampoule region and the overflow region comprise two elongate channels extending through the top portion.

5. (Withdrawn) A feed system as in claim 4, further comprising an o-ring seal positioned between the top portion and the bottom portion.

1 6. (Withdrawn) A feed system as in claim 1, further comprising a lid
2 coupled to the feed system housing that is adapted to secure the ampoule within the ampoule
3 region.

1 7. (Withdrawn) A feed system as in claim 6, wherein the lid includes a slot
2 that is adapted to receive a top tab that extends from the top end of the ampoule.

1 8. (Withdrawn) A feed system for an aerosolizer, the feed system
2 comprising:
3 an ampoule containing a liquid, wherein the ampoule has a top end and a bottom
4 end;
5 a housing having an ampoule region into which the ampoule is held, and a liquid
6 receiving region that is adapted to receive liquid dispensed from the ampoule;
7 an interface that is adapted to couple the liquid receiving region to an aerosol
8 generator, whereby liquid from the liquid receiving region is permitted to flow to the aerosol
9 generator for aerosolization.

1 9. (Withdrawn) A feed system as in claim 8, wherein the liquid receiving
2 region includes an overflow region that extends along side the ampoule region above the bottom
3 end of the ampoule.

1 10. (Withdrawn) A feed system as in claim 8, wherein the liquid receiving
2 region includes a tapered bottom end with a drain opening to funnel liquid from the ampoule to
3 the aerosol generator.

1 11. (Withdrawn) A feed system as in claim 10, wherein the interface is
2 adapted to produce a seal between the bottom end of the liquid receiving region and the aerosol
3 generator.

1 12. (Withdrawn) A feed system as in claim 10, wherein the feed system
2 housing includes a top portion and a bottom portion having the tapered bottom end, wherein the

3 top portion is attachable to the bottom portion, and wherein the ampoule region and the overflow
4 region comprise two elongate channels extending through the top portion.

1 13. (Withdrawn) A feed system as in claim 12, further comprising an o-ring
2 seal positioned between the top portion and the bottom portion.

1 14. (Withdrawn) A feed system as in claim 8, further comprising a lid
2 coupled to the housing to secure the ampoule within the ampoule region.

1 15. (Withdrawn) A feed system as in claim 14, wherein the ampoule includes
2 a top tab extending from the top end, and wherein the lid includes a slot through which the top
3 tab extends.

1 16. (Withdrawn) A feed system as in claim 15, wherein the top tab is
2 removable to form a vent opening in the top end of the ampoule.

1 17. (Withdrawn) A feed system as in claim 8, wherein the ampoule includes a
2 bottom tab extending from the bottom end, and wherein the bottom tab is removable to form a
3 drain opening in the bottom end of the ampoule.

1 18. (Withdrawn) A feed system as in claim 12, wherein the ampoule includes
2 a bottom tab extending from the bottom end, and wherein the bottom tab extends distally beyond
3 the top portion of the housing, and wherein the bottom tab is removable prior to connection of
4 top portion with bottom portion to form a drain opening in the ampoule.

1 19. (Withdrawn) An aerosolization device, comprising:
2 a device housing having an interior and an exit opening;
3 an aerosol generator disposed within the device housing to eject an aerosolized
4 liquid through the exit opening;
5 a liquid feed system disposed within the device housing, the liquid feed system
6 comprising a feed system housing having an ampoule region that is adapted to receive an
7 ampoule that contains a liquid, a liquid receiving region that is adapted to receive liquid
8 dispensed from the ampoule, and an interface that couples the liquid receiving region to the

9 aerosol generator, whereby liquid from the liquid receiving region is permitted to flow to the
10 aerosol generator for aerosolization.

1 20. (Withdrawn) A device as in claim 19, wherein the liquid receiving region
2 includes an overflow region that extends along side the ampoule region above the bottom end of
3 the ampoule.

1 21. (Withdrawn) A device as in claim 19, wherein the liquid receiving region
2 includes a tapered bottom end with a drain opening to funnel liquid from the ampoule to the
3 aerosol generator.

1 22. (Withdrawn) A device as in claim 21, wherein the interface includes a
2 seal member to produce a seal between the bottom end of the liquid receiving region and the
3 aerosol generator.

1 23. (Withdrawn) A device as in claim 19, wherein the aerosol generator
2 includes a seal member to produce a seal between the aerosol generator and the interface. ☒

1 24. (Withdrawn) A device as in claim 21, wherein the feed system housing
2 includes a top portion and a bottom portion having the tapered bottom end, wherein the top
3 portion is attachable to the bottom portion to permit the top portion to be removed from the
4 device housing, and wherein the ampoule region and the overflow region comprise two elongate
5 channels extending through the top portion.

1 25. (Withdrawn) A device as in claim 24, further comprising an o-ring seal
2 positioned between the top portion and the bottom portion.

1 26. (Withdrawn) A device as in claim 19, further comprising a lid coupled to
2 the feed system housing that is adapted to secure the ampoule within the ampoule region.

1 27. (Withdrawn) A device as in claim 26, wherein the lid includes a slot that
2 is adapted to receive a top tab that extends from the top end of the ampoule.

1 28. (Withdrawn) A device as in claim 19, wherein the aerosol generator
2 comprises a vibratable member having a plurality of apertures and a vibratable element to vibrate
3 the vibratable member.

1 29. (Withdrawn) An aerosolization system in kit form, comprising:
2 an aerosolization device comprising a device housing having an exit opening, an
3 aerosol generator held within the housing to provide an aerosolized liquid through the exit
4 opening, and a liquid receiving portion of a liquid feed system; and
5 a liquid feed system receiver unit having an ampoule containing a liquid to be
6 aerosolized, wherein the receiver unit is insertable into the aerosolization device to couple with
7 the liquid receiving portion.

1 30. (Withdrawn) A kit as in claim 29, wherein the receiver unit includes an
2 ampoule region having the ampoule and a liquid overflow region adjacent to the ampoule region
3 for receiving overflow liquid from the liquid receiving portion.

1 31. (Withdrawn) A kit as in claim 29, wherein the ampoule has a top end and
2 a bottom end, a top tab extending from the top end that is removable to form a vent opening, and
3 a bottom tab extending from the bottom end that is removable to form a drain opening.

1 32. (Withdrawn) A kit as in claim 31, wherein the receiver unit has a bottom
2 end with an opening that is sized to permit the bottom tab to extend through the bottom end of
3 the receiver unit.

1 33. (Withdrawn) A kit as in claim 31, wherein the receiver unit has a top end
2 with an opening that is sized to permit the top tab to extend through the top end of the receiver
3 unit.

1 34. (Withdrawn) A kit as in claim 29, further comprising an o-ring seal
2 positioned between the receiver unit and the liquid receiving portion.

1 35. (Withdrawn) A kit as in claim 29, wherein the liquid receiving portion has
2 a tapered bottom end that is operably coupled to the aerosol generator.

1 36. (Withdrawn) A kit as in claim 29, wherein the aerosol generator
2 comprises a vibratable member having a plurality of apertures and a vibratable element to vibrate
3 the vibratable member.

1 37. (Currently amended) A method for providing a liquid medicament to an
2 aerosolization device for delivery to a patient's respiratory system ~~aerosolizing a liquid~~, the
3 method comprising:
4 ~~providing~~ inserting an ampoule containing a liquid into an aerosolization device,
5 the aerosolization device having a liquid feed system; and an aerosol generator; ~~and an exit~~
6 ~~opening~~, the aerosol generator comprising
7 an aperture plate having a front face and a rear face, with a plurality of
8 apertures extending therebetween; and
9 a vibratable element that is mechanically linked to the aperture plate, the
10 vibratable element being configured to vibrate the aperture plate;
11 creating a first opening in an ampoule, the ampoule containing the liquid
12 medicament;
13 exposing the first opening in the ampoule to the liquid feed system; and
14 creating a second opening in the ~~opening an~~ ampoule to permit the liquid from the
15 ampoule to drain into the a liquid receiving region of the feed system; ~~and~~
16 ~~operating the aerosol generator to eject liquid droplets through the exit opening.~~

1 38. (Currently amended) A method as in claim 37, wherein creating a first
2 opening comprises ~~further comprising~~ removing a bottom tab from the ampoule to form a drain
3 opening before exposing ~~inserting~~ the ampoule to the liquid feed system. ~~into the aerosolization~~
4 ~~device.~~

1 39. (Currently amended) A method as in claim 50-37, wherein the ampoule is
2 held within a receiver unit of the liquid feed system, and further comprising inserting the receiver
3 unit into the aerosolization device and coupling the receiver unit with the liquid receiving region.

1 40. (Original) A method as in claim 39, further comprising removing the
2 receiver unit from the aerosolization device following operation of the aerosol generator and
3 discarding the receiver unit.

1 41. (Original) A method as in claim 40, further comprising cleaning the
2 aerosol generator following removal of the receiver unit.

a1 1 42. (Currently amended) A method as in claim 37, wherein creating a second
2 opening comprises ~~further comprising~~ removing a top tab from the ampoule to form a vent
3 opening after inserting the ampoule into the aerosolization device.

1 43. (Original) A method as in claim 37, wherein the feed system includes an
2 overflow region adjacent to the ampoule and further comprising permitting excess liquid to flow
3 into the overflow region.

1 44. (Currently Amended) A method as in claim 50-37, further comprising
2 vibrating the an-aperture plate of the aerosol generator to produce the liquid droplets.

1 45. (Canceled)

1 46. (Canceled)

1 47. (Canceled)

1 48. (Canceled)

1 49. (Canceled)

1 50. (New) A method as in claim 37, further comprising operating the aerosol
2 generator to eject liquid droplets from the front face of the aperture plate.

1 51. (New) A method as in claim 37, wherein the aperture plate is non-planar
2 in geometry.

1 52. (New) A method as in claim 37, wherein the apertures are tapered to
2 narrow from the rear face of the aperture plate to the front face of the aperture plate.

1 53. (New) A method as in claim 52, wherein the apertures have a diameter of
2 about 1 micron to about 6 microns at their narrowest dimension.

1 54. (New) A method as in claim 37, wherein the vibratable element
2 comprises a piezoelectric transducer, and further comprising sending an electrical signal to the
3 piezoelectric transducer to vibrate the aperture plate.

a) 1 55. (New) An aerosolization device for delivering a liquid medicament to a
2 patient's respiratory system, the aerosolization device comprising:

3 a receiving member configured to receive an ampoule containing a liquid
4 medicament; and

5 an aerosol generator in fluid communication with the receiving portion and
6 configured to receive at least some of the liquid medicament from the receiving member and to
7 aerosolize the liquid medicament received from the receiving member, the aerosol generator
8 comprising:

9 an aperture plate having a plurality of apertures; and

10 a vibratable element that is mechanically linked to the aperture plate, such that
11 vibration of the vibratable element causes the aperture plate to vibrate, thereby ejecting droplets
12 of the liquid medicament.

1 56. (New) An aerosolization device as in claim 55, wherein the vibratable
2 element comprises a piezoelectric transducer, and wherein the aerosol generator further
3 comprises control circuitry configured to send an electrical signal to the piezoelectric transducer,
4 thereby causing the transducer to vibrate.

1 57. (New) An aerosolization device as in claim 55, wherein the plurality of
2 apertures are tapered.

1 58. (New) An aerosolization device as in claim 57, wherein the aperture plate
2 comprises a front face and a rear face, with the plurality of apertures therebetween, the apertures
3 being tapered to narrow from the rear face of the aperture plate to the front face of the aperture
4 plate.

1 59. (New) An aerosolization device as in claim 57, wherein the apertures have
2 a diameter of about 1 micron to about 6 microns at their narrowest dimension.

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1 60. (New) An aerosolization device as in claim 55, wherein the aperture plate
2 is non-planar in geometry.

1 61. (New) An aerosolization device as in claim 55, further comprising an
2 ampoule configured to be coupled to the receiving member, the ampoule containing the liquid
3 medicament.

1 62. (New) An aerosolization device as in claim 61, wherein the ampoule is
2 configured to be inserted into the receiving portion.

1 63. (New) An aerosolization device as in claim 61, wherein the ampoule
2 comprises a first opening, such that when the first opening is opened, the liquid medicament is
3 exposed to the aerosol generator.

1 64. (New) An aerosolization device as in claim 63, wherein the ampoule
2 further comprises a second opening, such that when the second opening is opened, the liquid
3 medicament is allowed to flow out of the ampoule toward the aerosol generator.

1 65. (New) An aerosolization device for delivery of a liquid medicament to a
2 patient's respiratory system, the aerosolization device comprising:
3 a receiving member;
4 an ampoule containing a liquid medicament and having a first opening, the
5 ampoule being configured to be inserted into the receiving member, such that when the first
6 opening is opened, the ampoule is in fluid communication with the receiving portion; and

7 an aerosol generator in fluid communication with the receiving portion, the
8 aerosol generator being configured to receive at least some of the liquid medicament from the
9 ampoule and to aerosolize the liquid medicament received from the receiving member, the
10 aerosol generator comprising:

11 an aperture plate of non-planar geometry, the aperture plate having a front
12 face and a rear face with a plurality of apertures therebetween, with the apertures being
13 tapered to narrow from the rear face to the front face; and

14 a vibratable element that is mechanically linked to the aperture plate, such
15 that application of an electrical signal to the vibratable element causes vibration of the
16 aperture plate, thereby ejecting droplets of the liquid medicament.

Q 1 66. (New) An aerosolization device as in claim 65, wherein the ampoule
2 further comprises a first tab covering the first opening, such that removing the first tab exposes
3 the first opening.

1 67. (New) An aerosolization device as in claim 65, wherein the ampoule
2 comprises a second opening, such that when the second opening is opened, the liquid
3 medicament is allowed to flow from the ampoule toward the aerosol generator.

1 68. (New) An aerosolization device as in claim 67, wherein the ampoule
2 further comprises a second tab covering the second opening, such that removing the second tab
3 exposes the second opening.

1 69. (New) An aerosolization device as in claim 65, wherein the apertures have
2 a diameter of about 1 micron to about 6 microns at their narrowest cross-section.
